

## **REMARKS**

In response to the above-identified Office Action, Applicants seek reconsideration thereof. In this response, no claims have been amended, no claims have been added and no claims have been cancelled. Accordingly, Claims 1-20 are pending.

### **I. Claims Rejected Under 35 U.S.C. §112, second paragraph**

The Examiner rejects Claims 1-3 under 35 U.S.C. § 112, second paragraph, as being unclear for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner alleges Claim 1 does not set forth the structural cooperation between the sensing substrate and the channel substrate and Claims 2 and 3 do not recite further structural limitations from Claim 1. Applicant respectfully disagrees with the Examiner. Claim 1 recites that the device is “manufactured by binding a sensing substrate...with a channel substrate.” Thus, Claim 1 clearly sets forth the relationship between the sensing substrate and the channel substrate. In regard to Claims 2 and 3, Applicant respectfully notes Applicant is not required to set forth further “structural limitations” as alleged by the Examiner. 35 U.S.C. §112 merely requires dependent claims “specify a further limitation of the subject matter claimed.” Claims 2 and 3 clearly recite limitations on the relationship between the first and second fluids and the sensing and channel substrates recited in Claim 1. Thus, for at least the foregoing reasons, Claims 1-3 meet the requirements of 35 U.S.C. §112, second paragraph. In view of the foregoing, Applicant respectfully requests withdrawal of the rejection of Claims 1-3 under 35 U.S.C. §112, second paragraph.

### **II. Claims Rejected Under 35 U.S.C. §102(b)**

The Examiner rejects Claims 1-4 under 35 U.S.C. 102(b) as being anticipated by PG PUB 2004/0007275 issued to Hui Liu et. al. (“Hui”). Applicant respectfully disagrees for at least the following reasons.

The instant invention is directed to a microfluidic device manufactured by binding a sensing substrate including a sensing electrode, an electrode interconnect, and a electrode pad, with a

channel substrate including at least two fluid inlet ports, a chamber and a channel wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump.

To anticipate a claim, the relied upon reference must disclose every limitation of the claim. In regard to Claim 1, Hui fails to teach or suggest at least the elements of the channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. In the outstanding Action, the Examiner fails to point out wherein within Hui these elements are expressly recited. Instead, seemingly recognizing the failure of Hui to teach these elements, the Examiner alleges since the sample and reagents are loaded into separate chambers, at least two inlet ports are indicated. See Action, page 3. The Examiner further notes Hui teaches fluid flow by gravity, pump or capillary forces. Applicant respectfully submits, the Examiner's statements are based upon conjecture alone are not sufficient to support a finding of anticipation. Moreover, the Doctrine of Equivalents does not support the Examiner's conclusions. Under the Doctrine, it must be shown that the purported inherent element is necessarily present in the reference, not that it may or could be. Hui merely teaches that the user loads a sample and reagents via pipetting into the PCR chamber and the hybridization buffer storage chamber. See Hui paragraph [0016] cited by the Examiner. Hui does not suggest that the sample and reagents are loaded into separate inlet ports, nor does Hui teach separate inlet ports are present. Thus, in as much as the sample and reagents could be loaded through a single branched inlet port or through some other structure, at least two separate inlet ports are not inherently present in Hui. Moreover, since Hui fails to specify when a capillary force or external pump is used, a first fluid injected flow by natural capillary force and a second fluid forced to flow by an external pump is not necessarily present in Hui. Thus for at least the foregoing reasons, the Examiner has failed to set forth, and Applicant is unable to discern wherein within Hui at least the elements of a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to

flow by an external pump are taught or suggested. Since Hui fails to teach or suggest all the elements of Claim 1, anticipation may not be found. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claim 1 under 35 U.S.C. §102.

Claims 2-4 depend from Claim 1 and incorporate the limitations thereof. Thus, at least for the reasons discussed above in regard to Claim 1, Hui fails to teach or suggest all the elements of Claims 2-4. Since each element of Claims 2-4 is not taught or suggested by Hui, anticipation may not be found. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claims 2-4 under 35 U.S.C. §102.

### **III. Claims Rejected Under 35 U.S.C. §103(a)**

A. The Examiner rejects Claims 5-9 under 35 U.S.C. 103(a) as being obvious over Hui in view of PG PUB 2002/0150683 issued to Troian et al. ("Troian"). Applicants respectfully traverse this rejection for at least the following reasons.

To render a claim obvious, the relied upon references must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art. Claims 5-9 depend from Claim 1 and incorporate the limitations thereof. Thus, for at least the reasons discussed above in regard to Claim 1, Hui fails to teach or suggest a microfluidic device having a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. The Examiner has not pointed to, and Applicant is unable to discern any portion of Troian teaching these elements. Since the relied upon references fail to teach or suggest all the elements of Claims 5-9, a *prima facie* case of obviousness may not be established. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claims 5-9 under 35 U.S.C. §103.

**B.** The Examiner rejects Claims 10-14 and 20 under 35 U.S.C. 103(a) as being obvious over Hui in view of PG PUB 2003/0190608 issued to Blackburn et al. ("Blackburn"). Applicants respectfully traverse this rejection for at least the following reasons.

In regard to Claim 10, Claim 10 depends from Claim 1 and incorporate the limitations thereof. Thus, for at least the reasons discussed above in regard to Claim 1, Hui fails to teach or suggest a microfluidic device having a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. The Examiner has not pointed to, and Applicant is unable to discern any portion of Blackburn teaching these elements. Since the relied upon references fail to teach or suggest all the elements of Claim 10, a *prima facie* case of obviousness may not be established. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claim 10 under 35 U.S.C. §103.

Independent Claim 11, similar to Claim 1, is directed to a microfluidic device having a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. Thus, at least for the reasons discussed above in regard to Claim 1, Hui fails to teach or suggest a microfluidic device having a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. The Examiner has not pointed to, and Applicant is unable to discern any portion of Blackburn teaching these elements. Since the relied upon references fail to teach or suggest all the elements of Claim 11, a *prima facie* case of obviousness may not be established. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claim 11 under 35 U.S.C. §103.

In regard to Claims 12-14 and 20, these claims depend from Claim 11 and incorporate the limitations thereof. Thus, for at least the reasons discussed above in regard to Claim 11, neither Hui nor Blackburn teach or suggest a microfluidic device having a channel substrate including at least

two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. Since the relied upon references fail to teach or suggest all the elements of Claims 12-14 and 20, a *prima facie* case of obviousness may not be established. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claims 12-14 and 20 under 35 U.S.C. §103.

The Examiner rejects Claims 15-19 under 35 U.S.C. 103(a) as being obvious over Hui in view of Blackburn and further in view of Troian. Applicants respectfully traverse this rejection for at least the following reasons.

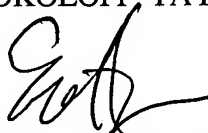
Claims 15-17 and 19 depend from Claim 11 and Claim 18 depends from Claim 1 and incorporate the limitations thereof. Thus, for at least the reasons discussed above in regard to Claims 1 and 11, neither Hui, Blackburn nor Troian teach or suggest a microfluidic device having a channel substrate including at least two fluid inlet ports wherein a first fluid injected via one of the fluid inlet ports flows by natural capillary force, and a second fluid injected via another fluid inlet port is forced to flow by an external pump. Since the relied upon references fail to teach or suggest all the elements of Claims 15-19, a *prima facie* case of obviousness may not be established. For at least the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claims 15-19 under 35 U.S.C. §103.

### CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely claims 1-20 patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207 3800.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP



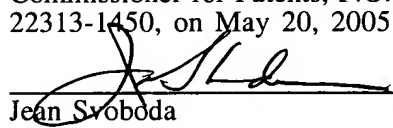
Dated: May 20, 2005

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 20, 2005.

  
Jean Svoboda

May 20, 2005